KFUPM | Term 172 | Date: 19/2/2018

Mathematics & Statistics | MATH 102 | Duration: 40 minutes

Class Test 1

Name: ID #: Section: 37 Serial #:

1. If $\frac{dy}{dx} = \sec 2x \tan 2x$ and $y\left(\frac{\pi}{6}\right) = 3$, then find $y(0)$.

2. The bas e of a solid is bounded by the curves $y = x^2$, $y = 0$, and $x = 1$. If the cross-sections perpendicular to the x-axis are semi-circles, compute the volume of the solid.

3. The region bounded by the curve $y = x^3$ and the line $y = 4x$ in the first quadrant is revolved about the line y = 8. Compute the volume of the solid generated.

P.T.O. →

4. Find the $\lim_{x\to 0}\left(\frac{1}{x-\sin x}\int_0^x t\sin t\ dt\right)$.

5. Evaluate $\int 60\,x^7\sqrt{x^4+1}\ dx$.

With My Best Wishes

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Class Test 1

Name: ID #: Section: 8 Serial #:

1. If $\int_1^3 (2 - f(x))\ dx = \int_3^5 (t + f(t))\ dt$, then find $\int_1^5 f(x)\ dx$.

2. If $\int_0^{2x} e^{u/2} g(u)\ du = xe^x$, then find $g(4)$.

3. Evaluate $\int_{-2}^{2} \left(3 - |x| + \sqrt{4 - x^2}\right)\ dx$.

P.T.O →

4. If a solid is generated by revolving the region bounded by the curves $y = x^2$ and $x = y^2$ about the line $x = 2$, then find the volume of the solid.

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5. Find the area of the region bounded by the graphs $y = x$, $y = \frac{1}{x}$, $3y - 2x + 5 = 0$ and above the line $y = -x$.

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Class Test 1

Name: | ID #: | Section: 34 | Serial #:

1. Find cu if $\int \frac{\sec^2(e^{-\sqrt{t}}+1)}{\sqrt{t}e^{\sqrt{t}}}\ dt = \int c\sec^2 u\ du$.

2. Let f be an odd and continuous function. If $\int_0^4 f(x)\ dx = 6$, then find $\int_0^2 f(-2x)\ dx$.

3. Evaluate $\int \frac{x-3}{3+x^2}\ dx$

P.T.O →

4. The curve $= \sqrt{4x - x^2}$, $1 \leq x \leq 4$, is revolved about the x-axis. Find the volume of the generated solid.

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5. Evaluate $\frac{1}{2} \int \operatorname{sech} y \ dy$

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Name:	ID #:	Section: 42 Serial #:

1. Find the volume of the solid generated by revolving the region bounded by the curves $y^2 = -x$ and $x - y + 2 = 0$ about the line $y = 1$.

2. Find the area of the region enclosed by the lines $= -x$, $y = x + 2$, and $x = \sqrt{y}$.

P.T.O →

3. Compute $\int_{-e^{-1}}^{1/e} \frac{x^3+x}{\sqrt{4-x^2}}\ dx$.

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4. If $h(t) = \int_{-t}^{t} (x \arctan x)\ dx$, then find $h'(1)$.

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5. Evaluate $\int \frac{\csc^3 \theta+1}{\sec \theta}\ d\theta$.

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